CI/CD — A better way to build and ship our products.

Fundamentals and Benefits of CI/CD to Achieve, Build, and Deploy Automation for Our Products.

Continuous Integration

First, you would ask; What is **Continuous Integration**?

In simple terms it’s the practice of merging all developers' working copies to a shared mainline periodically or iteratively to avoid conflicts in the code in the future. It's the first step towards ensuring that we have a combined, high quality, deployable artifact.

Some of the steps in this stage include: compiling, testing, running static analysis, checking for vulnerabilities in our dependencies, storing the code artifacts etc.

Continuous Deployment

After having an idea of what Continuous Integration is, what then is **Continuous Deployment**?

It’s the process by which verified changes in codebase or system architecture are deployed to production as soon as they are ready and without human intervention - keyword is “without human intervention”.

Some steps in this stage include: setting up infrastructure, provisioning servers, copying files, smoke testing, promoting to production and even rolling back a change if something didn’t look right.

Benefits of CI/CD to our business

We would have these benefits when we set up our CI/CD pipeline:

- **Automated Smoke Tests**: This would protect our revenue by reducing downtime caused by deploy-related crashes, breakdowns or bugs.
- **Catch Unit Test Failures:** Having less bugs in our production software and spending less time doing manual testing would help us to avoid cost.
- **Faster and More Frequent Production Deployment:** We would get more revenue by shipping value generating features more frequently to the customers, this would also help us to get feedback early and stay

ahead.

- **Easy Rollback**: This ensures that if at all we deploy a breaking software to production, we can easily rollback (or restore) the last working version to customers.

Benefits of CI/CD to our business contd.

- **Detect Security Vulnerabilities:** This would enable us to easily detect serious security flaws that would be embarrassing if it had made it to the public. This would save us money trying to win back the customers' trust and rebuilding our image.
- **Deploy to Production Without Manual Checks:** Less time to market would help us to increase our revenue.

I would leave with this: A penny saved is a penny earned.